REMARKS

Reconsideration and allowance in view of the foregoing amendment and the following remarks are respectfully requested.

Applicants thank the Examiner for the detailed information in the Advisory Action and shall provide further arguments in this RCE and respectfully request a full reevaluation of our position as well as the Examiner's position in this analysis.

Applicants understand the basis of the comments in the Advisory Action as asserting that a spoken language understanding system inherently involves two phases of operation: a training operation and a testing operation. The Advisory Action asserts that our previous arguments did not treat the prior art teachings "as a whole" and only refer to the testing operation rather than the training operation. In other words, it is Applicants understanding that the Examiner's position is that the teachings within Arai et al. with regards to their training operation disclose the particular limitations of the claims outlined in the final Office Action. Applicants respectfully traverse this analysis and shall discuss in detail the portions of the reference cited in the Advisory Action and shall also cite specific portions of the reference in which it is assumed that the call types already exist and are not generated.

First, Applicant notes that the Advisory Action cites Arai et al. as disclosing both a training and a testing operation in Figure 9 citing feature 1100 as the training operation and feature 1110 as the testing operation. Applicants respectfully note that in the Advisory Action in the discussion of Figure 9 there is no discussion of call types and therefore, Applicants shall move on to the other cited portions of the reference inasmuch as Figure 9 is not asserted to teach generating call types.

Next, the Advisory Action cites Figure 2 and columns 4, line 6 to column 5, line 67 with equations 3 and 6 as teaching "generating 'call-types'". Applicants traverse this analysis and

note that this portion of the reference discusses Figure 2 and the syntactic association taught in Figure 2. Some further discussion is warranted to fully understand what the reference teaches in this portion. Column 3, starting at line 44 discusses how syntactic association signifies the relationship between a grammar fragment and phrases succeeding or proceeding the fragment. The reference explains that several kinds of succeeding and proceeding phrases for each fragment are generally observed in the training transcriptions. If the role of the fragments are similar to each other in spoken dialog, then the distribution of these phrases will be similar between fragments. Thus, they explain that by syntactic association, Arai et al. do not explicitly focus on grammatical issues, such as part of speech and tense, but rather on distribution of phrases surrounded a grammar fragment. They go on to explain "on the other hand, the semantic associations focus on the relationship between a fragment and spoken language and the tasks or call-type corresponding to the speech. The distribution of call-types for a fragment must be comparable to that for another fragment if the two fragments are to be clustered. The semantic association is therefore the cross channel association between speech and call-types." Applicants respectfully submit that the discussion in this reference of the "distribution of call-types" and as shall be seen below, the math involved in equations 3 and 6, as well as explicit language in the reference, require the preexistence of the call types. In other words, there simply is no "generation" of call-types within the teachings of the reference.

Column 3, beginning at line 61 discusses Figure 2 in the example of syntactic and semantic associations of a fragment. They explain with reference to Figure 2 that

> "the letter f denotes a grammar fragment, the letters s and c define a preceding or succeeding phrase and call-type, respectively. In Fig. 3, f consists of only one phrase 'calling card'. Suffixes, such as t and t+1, refer to a sequential order. Given a phrase, fragment, call-type or combination thereof as an argument, the function of C() counts frequency of the argument in the training transcriptions." (Emphasis added.)

Applicants respectfully submit that this discussion amply supports Applicants' position that even if this is considered part of the training operation, as is asserted in the Advisory Action, the equations and the semantic and/or syntactic association analysis merely involves being "given" a phrase or fragment and a call-type as an argument. In other words, the call-types are not generated based on a first set of utterances as is recited in claim 1 but they are simply "given" as part of an argument for processing by an equation. This of course requires that they be preexisting and thus not generated by the distancing process.

Columns 4 and 5 cited in the Advisory Action support our position. The discussion in column 4, lines 6-18 reference a call-type "calling card" and a "call-type probability distribution" which represents a semantic feature vector for a fragment. These references to call-types merely involve the result and identification of the probability distribution of call-types over the phrase or fragments given those phrase or fragments and given the call-type. In other words, in the example provided, the call-type "calling card" already exists and it is passed to the mathematical equations as an argument as is explained in column 3, line 65 through column 4, line 2. We now turn to the cited equations.

Equation (3) in column 5 shows how to estimate probabilities distribution based on call-type frequencies. Column 5 teaches that the letter c_i denotes one of the call-types on this task and C (c_iF_j) is the frequency of the call-type c_i associated with the phrase f_i. Therefore, what the inputs that are given as arguments into equation (3) are the call-types c_i and the phrase f_i and the output is the probability distribution based on call-type frequencies. Applicants respectfully submit that this equation supports Applicants' position that the call-types are not generated based on the first set of utterances but already exist and are used ("given") along with the phrases as arguments to arrive at a probability distribution based on the call-type frequencies.

Next, we analyze equation (6). This equation defines a distance based on call-type probability distributions. Again, c_i represents one of the call-types belonging to the call-type C. The functions $p\hat{}(c_i|f_i)$ and $p(c_i|f_i)$ are smooth probability distributions for the call-type c_i associated with fragments f_1 and f_2, respectively. Applicants respectfully submit that again the arguments that are given in equation (6) include call-types c_i from a call-type set C and fragments f_1 and f_2. Inasmuch as the call-types are simply given as an argument into the particular function, Applicants submit that the output which is the distance based on the call-type probability distributions clearly does not involve the generation of a plurality of call-types, each generated call-type being based on a first set of utterances.

Applicants therefore submit that the primary portions and equations cited in the Advisory Action as teaching this particular limitation to the claim has been shown persuasively to not teach generating call-types but to explicitly require that the call-type set C already exists and particular call-types simply be given as arguments into the various equations for processing and identifying call-type distributions.

Applicants further note that in several places in the Advisory Action the concept of "clustering" is shown in Figure 9 is equated with "generating". It is through the use of this word "generating" that the Examiner appears to convert the concept of generating from the clustering of grammar fragments into the generation of call-types. Applicants submit that this meshing of the analysis is not persuasive. The fact that clusters may be considered as "generated" as is cited multiple times in the Advisory Action does not change our arguments.

Next, the Advisory Action states "furthermore, it can be seen that 'call-types' is only a part of a three-phrase grammar fragment model, wherein 'each phrase is a substring of a sentence'" citing figures 2 and 7a-7t and subject matter in columns 3, 7 and 8. Applicants do not dispute that the concepts disclosed by Arai et al. involve candidate phrases having three

associated probability distributions which include succeeding context, preceding context, and associated semantic actions or call-types. See column 2, lines 20-35 and column 3, lines 5-9. However, the conclusion in the Advisory Action that "call-type information is necessarily/inherently used during training operations since call-type probability and/or distance (information) is/are contributed as part of process for the clustering." Applicants incorporate the arguments set forth above and note that this statement is essentially a statement of Applicants' position. Namely, that it is clear in the teachings of the reference that when the distance measurements are calculated between each grammar fragment, that this merely involves giving a phrase, fragment, call-type or combination thereof as arguments into various functions to calculate the necessary distance measurements. See column 3, line 65 through column 4, line 2. Therefore, to the extent that the "training operation" is taught as the process of clustering fragments, which it appears is the Examiner's position, Applicants submit that our position remains persuasive. We are not arguing that there is some "separate testing operation" only of which applies to our argument. Our argument is specifically pointed to the carrying out of the various equations involved in what the Examiner characterizes as the "training operation". In other words, when engaging in the clustering operation which involves generating a collection of grammar fragments each representing a set of syntactically and semantically similar phrases, in which salient sequences of these fragments are exploited by a spoken language understanding module to determine call classification (see column 2, lines 13-34), Applicants' position is that this clustering process expressly draws upon a preexisting call-type sets C which is provided to the various distant measurement equations. Therefore, Applicants submit that our position remains persuasive with regards to the question of whether Arai et al. teach generating a plurality of call-types, each generated call-type being based on a first set of utterances selected from the

collected plurality of utterances. Applicants submit that this feature is not taught or suggested in the reference.

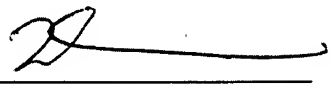
Therefore, Applicants respectfully submit that we have certainly reviewed the teachings if Arai et al. "as a whole" and have analyzed more deeply and more fully what the express teachings of the reference are. Applicants therefore submit that because the reference fails to teach the particular limitations of the claims, that even if these prior art references are combined, they nevertheless fail to teach each limitation of the independent claims and therefore this claim set is patentable and in condition for allowance.

CONCLUSION

Having addressed all rejections and objections, Applicants respectfully submit that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited. If necessary, the Commissioner for Patents is authorized to charge or credit the **Novak, Druce & Quigg, LLP, Account No. 14-1437** for any deficiency or overpayment.

Respectfully submitted,

Date: October 22, 2008

By: 

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